Nurses play essential roles in reducing health problems due to climate change

Jeanne Leffers, PhD, RN, FAAN, Patricia Butterfield, PhD, RN, FAAN*
Environmental and Public Health Expert Panel

Executive Summary

Climate change is endangering the stability of the planet's ecological systems and poses untoward risks to the continued survival of humans (Kurth, 2017; Landrigan et al., 2017; Melillo, Richmond, & Yohe, 2014; Watts et al., 2017). In our communities, climate change is experienced as increased frequency and intensity of wildfires, heat waves, winter storms, hurricanes, and floods, as well as changes in vector distribution. Climate- and weather-related conditions affect health conditions as diverse as asthma, sudden cardiac death, premature birth, gastrointestinal illness, depression, malnutrition, and vector-borne illness (Schifino, Lallo, De Sario, Davoli, & Michelozzi, 2013; Sheffield & Landrigan, 2011). Nurses play essential roles in public health, clinical care, emergency services, research, and advocacy through their work to reduce and respond to the health consequences of climate change.

To minimize the health consequences of climate change and harness the full potential of nurses, both upstream- and downstream-oriented policies are needed. **Upstream policies** focus on assuring the best possible outcomes for the health of future generations. Specific upstream recommendations address reducing pollution, building resilient communities, and increasing the public's understanding of the connection between their health and climate health. **Downstream policies** focus on climate adaptation, disaster response, and the importance of preparing the nursing workforce to address the health consequences of climate change.

Background

Evidence in support of climate change as a global health threat is unequivocal (World Health Organization, 2017; Watts et al., 2017). Average U.S. temperatures have risen significantly during the past century, with the greatest rise in the past 40 years; these changes are altering patterns in rainfall, hurricanes, and ocean acidification (Melillo et al., 2014). Climate change significantly affects health conditions as diverse as asthma, domestic violence, gastrointestinal illness, vector-borne disease, premature birth, and cardiac mortality (Leyva, Beaman, & Davidson, 2017; Sheffield & Landrigan, 2011; U.S. Global Change Research Program, 2016). Climate change poses unequal risk and burdens placed upon those most vulnerable because of biologic and social factors resulting in cascading and multiplicative (Veenema et al., 2017; Watts et al., 2017) consequences. Although some of the health consequences of climate change, such as asthma and heat exhaustion, are clearly apparent, many other consequences are harder for nurses to recognize. Adverse impacts upon human health include not only the exacerbation of existing conditions but also the creation of long-lasting outcomes to vulnerable infants, children, and unborn fetuses. Pollution, driven by global climate change and other factors, is responsible for three times more premature deaths than from malaria, tuberculosis, and acquired immunodeficiency syndrome (AIDS) combined (Landrigan et al., 2017).

The consequences of climate change increase the global burden of disease and create enormous costs to society. In 2013, the United States' and other high-income countries' health-care spending for diseases caused by air pollution totaled 3.5% of total health expenditures, whereas in Sri Lanka, the only low-income country for which data are available, that figure rose to 7.4% of health-care expenditures (Landrigan et al., 2017). In U.S. dollars, the costs associated with air pollution using metrics determined by economists range from $1691 billion dollars for high-income countries to $18 billion in low-income countries. Action to reduce adverse health impacts of climate change can result in healthier populations and dramatic reduction in health-care spending (Landrigan et al., 2017; Environmental Protection Agency, 2011).

There is a convergence of concern about the delayed response to climate change. Calls for action from governmental, medical, and scientific leaders have grown over the past 5 years. The U.S. government's withdrawal

* *Corresponding author:* Jeanne Leffers, College of Nursing, University of Massachusetts Dartmouth, 285 Old Westport Rd., Dartmouth, MA 02747.
E-mail address: jleffers@comcast.net (J. Leffers).
0029-6554/$ — see front matter © 2018 Elsevier Inc. All rights reserved.
https://doi.org/10.1016/j.outlook.2018.02.008

from the Paris Agreement has primarily served as an accelerant for diverse constituencies to embrace both the ambition and the political will to achieve the treaty's targets (Watts et al., 2017). Pope Francis' Encyclical, *Laudato Si*, calls for actions to address climate change and pollution to address the harmful effects of an industrial society that increases pollution and accelerates climate change particularly for those most vulnerable to its impacts (Pope Francis, 2015).

Nurses as a Unique Asset in Addressing Climate Change

As the largest group of health professionals in the United States and more than 20 million worldwide (World Health Organization, 2017), nurses provide leadership through upstream climate strategies of mitigation and resilience, and downstream interventions to climate events. Nurses play essential roles in both reducing and responding to the health consequences of climate change. Not only are they critical to every facet of health promotion and patient care, nurses are also trusted messengers of health information and serve as essential personnel during all phases of disaster response. Nurses are also knowledgeable stewards of health-related resources and are leaders in implementing actions that reduce healthcare's waste stream (e.g., biohazards, pharmaceutical waste) and carbon footprint. Beyond nurses' role in clinical care to patients and populations, they conduct research related to climate change (Polivka, Chaudry, & Crawford, 2012; Richardson, Grose, Bradbury, & Kelsey, 2017) and serve on local, national, and international boards that address pollution and climate policy. As yet, the nursing profession has not reached full capacity to address the health impacts of climate change because of lack of knowledge and appropriate education and training to achieve greater nurse participation in upstream and downstream strategies for climate change.

The Academy calls upon all nurses to advocate for agencies and other organizations to assure robust systems for climate change monitoring and public health tracking, provide adequate funding for climate change-related research, and advance training initiatives that advance nurses' ability to implement sustainability initiatives in health-care systems. Federal agencies such as the Health Resources and Services Administration (HRSA) should support increasing the capacity of the nursing workforce to act proactively and effectively before, during, and after disasters. The Academy opposes the rollback of climate protective standards and seeks to advance community-based initiatives that support populations most vulnerable to the health consequences of climate change.

Responses and Policy Options

Because the health effects of climate change are multifaceted, it can be difficult to see the connection between climate-related changes and the illness, mortality, and economic consequences of climate change. In addition, conversations regarding climate change are occurring at a time when our nation is highly polarized; evidence from scientifically credible sources is subject to wide interpretation among special interest groups and the media. In this context, the advancement of policies addressing the public good becomes even more complex. Because nurses play critical roles in addressing climate impact prevention and response, they can be pivotal to reducing climate impacts. Nursing practice must include strategies to reduce climate change impacts through patient assessment and clinical care, research, advocacy, policy-making, and work with communities to strengthen resilience (George, Bruzzese, & Matura, 2017; Leffers, McDermott-Levy, Nicholas, & Sweeney, 2017).

The Academy's Position

The convergence of scientific data and the commensurate threats that climate change poses to health cannot be ignored. Policies are needed now that address:

(a) **upstream opportunities** to reduce pollution and create the best possible climate scenarios for future generations, and
(b) **downstream needs** related to all phases of disaster response and the essential role of the nursing workforce in saving lives during extreme weather events.

Recommendations

The Academy has long supported policies to improve both clinical care and the public's health. The time for action to address climate change and health is urgent and necessary to reduce the adverse effects of climate change upon health and to reduce the impact of climate change for future generations. To protect and preserve the public's health, both upstream and downstream policies are needed.

Upstream policies focus on pollution prevention and taking actions to assure the best possible climate outcomes for future generations. Upstream recommendations focus on promoting sustainable practices in all sectors of the economy (including health care) and increasing the public's awareness of the evidence linking their health with climate health. Recommendations include:

1. Reduce sources of pollution that contribute to climate change.
   a. Mobilize, focus, incentivize, and increase national funding for climate protective actions.
   b. Oppose any rollback of climate protective polices addressing fuel economy standards, power plant

emissions, and other sources of atmospheric carbon.
   c. Support climate protective initiatives at the community level, emphasizing the needs of populations and communities most affected.
   d. Advocate for community actions to incorporate renewable sources of energy, more fuel-efficient options for transportation, waste management, agricultural and forest management, and more energy-efficient buildings.
   e. Promote environmentally sustainable practices (e.g., reduction of medical waste) throughout hospitals and clinics nationwide.
2. Assure and fund robust systems for climate change monitoring and public health tracking.
   a. Develop cross-cutting initiatives that quantify premature mortality, attributable risk, and the socioeconomic burden of climate change-related illnesses.
3. Educate the public so that they understand the connections between their health and climate health. An informed citizenry is needed if health protective policies are to be enacted and supported.
   a. Assure that federal employees are not censored or restricted in any way from presenting scientific data or evidence-based recommendations addressing the health effects of climate change.
   b. Advance community-based initiatives addressing populations of concern, including those who are physiologically vulnerable (e.g., infants, pregnant women, elders), low-income, and/or have limited provisions to relocate to build resilience during disasters.
4. Advance training initiatives that improve nurses' ability to implement sustainability initiatives in health-care systems.
   a. Identify mitigation strategies for energy efficiency, waste reduction and safe waste disposal, and preferential purchasing to reduce the environmental footprint and advocate that they be implemented in health-care settings.
   b. Expand interdisciplinary health-care teams to reduce adverse impacts from health-care sector upon climate and health.

Downstream policies focus on climate adaptation and response, helping to prepare the United States to address the health consequences of climate change. Many of these policy recommendations address the nursing workforce because nurses' work is essential to survival and health protection during many climate-related events. Recommendations include:

5. Increase support for federally funded research aimed at minimizing the local consequences of climate change.
   a. Clearly articulate data-driven strategies that will yield direct benefits to populations and geographic areas of high concern.
6. Urge the American Association of Colleges of Nursing (AACN) and HRSA to develop curricula and professional development opportunities to increase the knowledge and skills of the health-care workforce to effectively address the health impacts of climate change.
   a. Strengthen the capacity of the nursing workforce to act proactively and effectively before, during, and after disasters.
7. Urge the American Nurses Association (ANA) to incorporate climate change and health into the *Scope and Standards of Practice: Nursing* to require effective response into clinical practice for the care of persons affected by climate change.
8. Collaborate with governmental and nongovernmental organizations such as the Federal Emergency Management Agency (FEMA), the Red Cross, and local Medical Reserve Corps to adopt or update strategies addressing emergency responses to climate change-related disasters.

Acknowledgments

The authors thank the members of the American Academy of Nursing Expert Panel on Environmental and Public Health for their input on this brief.

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